

In the Claims:

Please amend claims 1, 13, 17-20, 23 and 24 as follows:

1. (Currently Amended) A method of measuring a flow rate for use in an ultrasonic flowmeter, comprising:

a first determining step of determining whether a current measuring method is a pulse Doppler method employing a first circuit for detecting Doppler frequency from a reception wave received from a first transducer or a transit time method employing a second circuit for performing signal amplification from a reception wave received from a second transducer;

a second determining step of determining reliability of ~~a~~the reception wave in the current measuring method; and

a selecting step of selecting a measuring method different from the current measuring method when it is determined by a switching unit that the reliability of the reception wave is insufficient.

2. (Previously Presented) The method according to claim 1, wherein:  
the second determining step comprises:

a step of obtaining a value as an index of reliability of the reception wave; and

a step of determining whether or not the value as the index is smaller than a registered set value; and

the selecting step comprises a step of determining that reliability is not sufficient when the value as the index is smaller than the set value.

3. (Previously Presented) The method according to claim 2, wherein:  
when the current measuring method determined in the first determining step is the pulse Doppler method, the value as the index is an amplitude value of the reception wave;  
and

the set value is a smallest acceptable amplitude value of a reception wave in the pulse Doppler method.

4. (Previously Presented) The method according to claim 2, wherein:  
when the current measuring method determined in the first determining step is the pulse Doppler method, the value as the index is a ratio of an amplitude value of a reception wave to a predetermined amplitude value set in advance; and

the set value is associated with the ratio.

5. (Previously Presented) The method according to claim 2, wherein:

when the current measuring method determined in the first determining step is the pulse Doppler method, the value as the index is a power spectrum of a Doppler frequency obtained by performing a Fourier transform on the reception wave; and

the set value is a predetermined power value.

6. (Previously Presented) The method according to claim 2, wherein:

when the current measuring method determined in the first determining step is the pulse Doppler method, the value as the index is a ratio of a power spectrum of a Doppler frequency obtained by performing a Fourier transform on the reception wave to a predetermined power value; and

the set value is associated with the ratio.

7. (Previously Presented) The method according to claim 2, wherein:

when the current measuring method determined in the first determining step is the transit time method, the value as the index is a ratio of a transmission wave amplitude to a maximum amplitude of the reception wave; and

the set value is associated with the ratio.

8. (Previously Presented) The method according to claim 2, wherein:

when the current measuring method determined in the first determining step is the transit time method, the value as the index is a ratio of a power spectrum of a transmission frequency contained in the reception wave obtained by performing a Fourier transform on the reception wave to a predetermined power value; and

the set value is associated with the ratio.

9. (Previously Presented) The method according to claim 1, wherein:

when the current measuring method determined in the first determining step is the pulse Doppler method, the second determining step determines a measurement point in a status in which a measurement can be correctly performed at present, and counts the number of the correct measurement points; and

the selecting step changes the method to the transit time method when the obtained number of correct measurement points is smaller than a first threshold registered in advance.

10. (Previously Presented) The method according to claim 9, wherein

the second determining step obtains the number of times in which a waveform of the reception wave is not changed continuously for each measurement point, and determines as the correct measurement point a measurement point at which the obtained number of times is smaller than a predetermined second threshold.

11. (Previously Presented) The method according to claim 9, wherein the second determining step obtains a current velocity of flow for each measurement point, obtains an average value of velocity of flow obtained up to the last time, obtains a difference between the obtained current velocity of flow and the average value, determines whether or not the difference is smaller than a predetermined third threshold, and defines a measurement point having the difference smaller than the predetermined third threshold as the correct measurement point.

12. (Previously Presented) The method according to claim 9, wherein the second determining step obtains a Doppler shift based on the reception wave for each measurement point, obtains an average value of Doppler shifts obtained up to the last time, obtains a difference between the obtained Doppler shift and the average value, and defines a measurement point having the difference smaller than a predetermined fourth threshold as the correct measurement point.

13. (Currently Amended) A method of measuring a flow rate for use in an ultrasonic flowmeter, comprising:

a first determining step of determining whether a current measuring method is a pulse Doppler method employing a first circuit for detecting Doppler frequency from a reception wave received from a first transducer or a transit time method employing a second

circuit for performing signal amplification from a reception wave received from a second transducer;

a second determining step of determining reliability of a reception wave in the current measuring method; and

a selecting step of selecting a measuring method different from the current measuring method when it is determined by a switching unit that the reliability of the reception wave is insufficient, and when it is determined that the reliability of the reception wave is sufficient, obtaining a value as an index of reliability of a reception wave in each of the pulse Doppler method and the transit time method, comparing the values as the indexes of the two measuring methods, and selecting a measuring method having a larger value as the index.

14. (Original) The method according to claim 13, wherein

a value as an index of reliability of a reception wave in the transit time method is a weighted and added value between a ratio between a transmission wave amplitude and a maximum amplitude of a reception wave and a ratio between frequency power of a transmission wave and a reception wave.

15. (Original) The method according to claim 13, wherein

a value as an index of reliability of a reception wave in the pulse Doppler method is a weighted and added value of a ratio of an amplitude of a reception wave to a

predetermined amplitude value, and a ratio of a power spectrum of a Doppler frequency to a predetermined power value.

16. (Original) The method according to claim 13, wherein  
the method selecting step further comprises:

a step of determining whether or not a value of the index having a larger value as a result of the comparison is larger than a predetermined value; and

a step of outputting information about abnormality when the value is smaller than the predetermined value.

17. (Currently Amended) An ultrasonic flowmeter for measuring a flow rate of a fluid, comprising:

a first determination unit determining whether a current measuring method is a pulse Doppler method employing a first circuit for detecting Doppler frequency from a reception wave received from a first transducer or a transit time method employing a second circuit for performing signal amplification from a reception wave received from a second transducer;

a second determination unit determining reliability of a reception wave in the current measuring method; and

a selection unit selecting a measuring method different from the current measuring method when it is determined that the reliability of the reception wave is insufficient.

18. (Currently Amended) An ultrasonic flowmeter for measuring a flow rate of a fluid, comprising:

a first determination unit determining whether a current measuring method is a pulse Doppler method employing a first circuit for detecting Doppler frequency from a reception wave received from a first transducer or a transit time method employing a second circuit for performing signal amplification from a reception wave received from a second transducer;

a second determination unit determining reliability of a reception wave in the current measuring method; and

a selection unit selecting a measuring method different from the current measuring method when it is determined that the reliability of the reception wave is insufficient, and when it is determined that the reliability of the reception wave is sufficient, obtaining a value as an index of reliability of a reception wave in each of the pulse Doppler method and the transit time method, comparing the values as the indexes of the two measuring methods, and selecting a measuring method having a larger value as the index.



19. (Currently Amended) A computer-readable recording medium storing a program used to direct a computer of an ultrasonic flowmeter for measuring a flow rate of a fluid, to perform the steps comprising:

~~a function of determining whether a current measuring method is a pulse Doppler method~~ employing a first circuit for detecting Doppler frequency from a reception wave received from a first transducer or a transit time method employing a second circuit for performing signal amplification from a reception wave received from a second transducer;

~~a function of determining reliability of a reception wave in the current measuring method; and~~

~~a selecting function of selecting a measuring method different from the current measuring method when it is determined that the reliability of the reception wave is insufficient.~~

20. (Currently Amended) A computer-readable recording medium storing a program used to direct a computer of an ultrasonic flowmeter for measuring a flow rate of a fluid, to perform the steps comprising:

~~a function of determining a whether current measuring method is a pulse Doppler method~~ employing a first circuit for detecting Doppler frequency from a reception wave received from a first transducer or a transit time method employing a second circuit for performing signal amplification from a reception wave received from a second transducer;

~~a function of determining reliability of a reception wave in the current measuring method; and~~

~~a function of selecting a measuring method different from the current measuring method when it is determined that the reliability of the reception wave is insufficient, and when it is determined that the reliability of the reception wave is sufficient, obtaining a value as an index of reliability of a reception wave in each of the pulse Doppler method and the transit time method, comparing the values as the indexes of the two measuring methods, and selecting a measuring method having a larger value as the index.~~

21-22. (Cancelled)

23. (Currently Amended) An electronic device for use with an ultrasonic flowmeter for measuring a flow rate of a fluid:

a first determination unit determining whether a current measuring method is a pulse Doppler method employing a first circuit for detecting Doppler frequency from a reception wave received from a first transducer or a transit time method employing a second circuit for performing signal amplification from a reception wave received from a second transducer;

a second determination unit determining reliability of a reception wave in the current measuring method; and

a selection unit selecting a measuring method different from the current measuring method when it is determined that the reliability of the reception wave is insufficient.

24. (Currently Amended) An ultrasonic flowmeter, comprising:

a first measurement unit measuring according to a pulse Doppler method  
employing a first circuit for detecting Doppler frequency from a reception wave received from a first transducer;

a second measurement unit measuring according to a transit time method  
employing a second circuit for performing signal amplification from a reception wave received from a second transducer;

a flow rate calculating and controlling unit selecting one measuring method from the pulse Doppler method and the transit time method, so as to calculate a flow rate by using a measurement result from the measurement unit relating to the selected measuring method; and

a determination unit determining reliability of a reception wave in the currently selected measuring method, wherein,

the flow rate calculating and controlling unit selects a measuring method different from the currently selected measuring method when the determination unit determines that the reliability of the reception wave is low.